

## REMARKS

### **I. Status of the Claims**

Original claims 1-65 are present in US Patent No. 5,650,054 (the '054 Patent), as originally issued. New claims 66-75 are presented above.<sup>1</sup> Applicants respectfully request examination of claims 1-75.

### **II. Introduction to the '054 Patent**

As discussed in the Reissue Application Declaration by the Assignee, at the time of filing patent application 522,946, which issued as U.S. Patent No. 5,650,054 on July 22, 1997, Applicants failed to claim inventive methods and apparatus disclosed in the specification of the '054 patent. Applicants have filed this reissue application to remedy this error, and Applicants have now directed claims in this Preliminary Amendment to the inventive methods and apparatus disclosed in the original specification filed on September 1, 1995, but not originally claimed.

The claims of the '054 Patent are directed to gas sensors that are operative to sense a gas in an ambient atmosphere. The gas sensors include sensing and counter electrodes and a protonic conductive electrolyte membrane between and in contact with the sensing and counter electrodes. Gas sensors based on the subject matter of the '054 Patent typically do not require a power source for sensing of the gas. Thus, the life of any battery used in a commercial sensor covered by the '054 Patent, *e.g.*, a sensor for use as a residential CO sensor, is extended because the battery is only needed to power an alarm.

New claim 66 is similar to original claim 1 but recites that the sensing electrode and the counter electrode are the only two electrodes in contact with the first protonic conductive electrolyte membrane.

New claim 67 is similar to original claim 1 but recites that the sensing electrode reacts with the gas to produce a change in electrical characteristic between the sensing

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<sup>1</sup> In the event that the reissue application and the existing reexamination proceeding are merged, new claims 66-75 should be renumbered to be new claims 70-79, respectively.

electrode and the counter electrode in the absence of an applied voltage to the sensing electrode.

New claim 68 is similar to original claim 1 but recites that the sensing electrode and the counter electrode are the only two electrodes in contact with the first protonic conductive electrolyte membrane and that the sensing electrode reacts with the gas to produce a change in electrical characteristic between the sensing electrode and the counter electrode in the absence of an applied voltage to the sensing electrode.

New claim 69 is similar to claim 1 but recites that the sensing electrode and the counter electrode are on opposite sides of the first protonic conductive electrolyte membrane.

New claim 70 depends from new claim 69 and also recites that the sensing electrode and the counter electrode are the only two electrodes in contact with the first protonic conductive electrolyte membrane.

New claim 71 depends from new claim 69 and also recites that the sensing electrode reacts with the gas to produce a change in electrical characteristic between the sensing electrode and the counter electrode in the absence of an applied voltage to the sensing electrode.

New claim 72 depends from new claim 70 and also recites that the sensing electrode reacts with the gas to produce a change in electrical characteristic between the sensing electrode and the counter electrode in the absence of an applied voltage to the sensing electrode.

New claim 73 is similar to claim 1 but defines a non-biased electrochemical gas sensor in which said electrical measurement means detects changes in said electrical characteristic in the absence of any biasing voltage.

New claim 74 depends from new claim 73 and also recites that the sensing electrode and the counter electrode are the only two electrodes in contact with the first protonic conductive electrolyte membrane.

New claim 75 depends from new claim 73 and also recites that the sensing electrode reacts with the gas to produce a change in electrical characteristic between the

sensing electrode and the counter electrode in the absence of an applied voltage to the sensing electrode.

### **III. Support for New Claims 66-75**

Support for new claims 66-75 may be found throughout the specification, claims, abstract and figures as originally filed.

Support for new claim 66 may be found, for example, at Figure 1, at claim 1 and Column 4, lines 40-51.

Support for new claim 67 may be found, for example, at claim 1 and at Column 4, lines 35-51.

Support for new claim 68 may be found, for example, at Figure 1, at claim 1, and Column 4, lines, 35-51.

Support for new claim 69 may be found, for example, at Figure 1, at claim 1 and, at Column 11, lines 1-2.

Support for new claim 70 may be found, for example, at Figure 1, at claim 1 and Column 4, lines 40-51.

Support for new claim 71 may be found, for example, at Figure 1, at claim 1, and Column 4, lines, 35-51.

Support for new claim 72 may be found, for example, at Figure 1, at claim 1, and Column 4, lines, 35-51.

Support for new claim 73 may be found, for example at Figure 1, at claim 1, and at Column 4, lines 35-39.

Support for new claim 74 may be found, for example, at Figure 1, at claim 1 and Column 4, lines 40-51


Support for new claim 75 may be found, for example, at Figure 1, at claim 1, and Column 4, lines, 35-51.

**IV. Conclusion**

Each of new claims 66-75 is directed to subject matter that was originally disclosed but never claimed. Applicants respectfully request entry of new claims 66-75 and examination of claims 1-75.

Respectfully submitted,  
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